

CLAIMS

sub
A12 ✓
1. A ultrasonic inspection system management system comprising one or more ultrasonic inspection systems each consisting of a probe and a system main body, a host computer, a transmission line for connecting said one or more ultrasonic inspection systems and said host computer, and a data storage section, characterized in that said host computer comprises data collection means for collecting data provided by said one or more ultrasonic inspection systems via said transmission line and storing the data in said data storage section.

2. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is specimen inspection data and wherein said host computer further includes determination means for analyzing and determining the specimen inspection data.

3. The ultrasonic inspection system management system as claimed in claim 1 wherein at least one of said ultrasonic inspection systems comprises inspection system determination means for analyzing and determining specimen inspection data and wherein the data collected by said data collection means of said host computer is data of a determination result of said inspection system determination means.

sub
C2 ✓
4. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is first test

data provided when said probe of a specific one of said ultrasonic inspection systems is connected to said system main body and second test data provided when said probe is disconnected from said system main body and wherein said host computer further includes command signal output means for outputting command signals for obtaining the first test data and the second test data and abnormal point determination means for determining whether or not an abnormal point is contained in said specific ultrasonic inspection system based on the first test data and the second test data.

5. The ultrasonic inspection system management system as claimed in claim 4 wherein said probe is connected to and disconnected from said system main body by a switch device turned on and off as instructed by said host computer.

6. The ultrasonic inspection system management system as claimed in claim 1 wherein at least one of said ultrasonic inspection systems comprises inspection system abnormal point determination means for determining whether or not an abnormal point is contained in said ultrasonic inspection system based on first test data provided when said probe is connected to said system main body and second test data provided when said probe is disconnected from said system main body and wherein the data collected by said data collection means of said host computer is data of a determination result of said inspection system abnormal point determination means.

7. The ultrasonic inspection system management system as claimed in claim 4 wherein said probe is connected to and disconnected from said system main body by turning on and off a switch device.

8. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is reception level data and wherein said host computer further includes reception level comparison means for comparing most recent data of the reception level data or an average of continuous reception level data pieces containing the most recent data with a predetermined reception level setup value.

9. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is reception level data and wherein said host computer further includes change comparison means for comparing a difference or a change ratio between most recent data of the reception level data and its immediately preceding reception level data with a predetermined change setup value.

10. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is reception level data and wherein said host computer further includes reception level comparison means for comparing most recent data of the reception level data or an average of continuous reception level data pieces containing the most recent data with a predetermined reception level setup value and change comparison means for comparing a difference or a change ratio

between the most recent data and its immediately preceding reception level data with a predetermined change setup value when said reception level comparison means determines that the most recent data or the average is greater than the reception level setup value.

11. The ultrasonic inspection system management system as claimed in claim 1 wherein at least one of said ultrasonic inspection systems comprises inspection system reception level comparison means for comparing most recent data of reception level data or an average of continuous reception level data pieces containing the most recent data with a predetermined reception level setup value and wherein the data collected by said data collection means of said host computer is data of a comparison result of said inspection system reception level comparison means.

12. The ultrasonic inspection system management system as claimed in claim 1 wherein at least one of said ultrasonic inspection systems comprises inspection system change comparison means for comparing a difference or a change ratio between most recent data of reception level data and its immediately preceding reception level data with a predetermined change setup value and wherein the data collected by said data collection means of said host computer is data of a comparison result of said inspection system change comparison means.

13. The ultrasonic inspection system management system as claimed in claim 1 wherein at least one of said

ultrasonic inspection systems comprises inspection system reception level comparison means for comparing most recent data of reception level data or an average of continuous reception level data pieces containing the most recent data with a predetermined reception level setup value and inspection system change comparison means for comparing a difference or a change ratio between the most recent data and its immediately preceding reception level data with a predetermined change setup value when said inspection system reception level comparison means determines that the most recent data or the average is greater than the reception level setup value and wherein the data collected by said data collection means of said host computer is data of comparison results of said inspection system reception level comparison means and said inspection system change comparison means.

14. The ultrasonic inspection system management system as claimed in claim 1 wherein said data comprises probe data reception means for receiving data of said probe of a specific one of said ultrasonic inspection systems.

15. The ultrasonic inspection system management system as claimed in claim 1 wherein the data is predetermined data in components making up said system main body and wherein said host computer further includes component data reception means for receiving the predetermined data of the components.

16. In a ultrasonic inspection system comprising a probe and a system main body comprising a ultrasonic

66440-5984260

Corr
A44

transmission/reception circuit for exciting said probe and receiving a signal therefrom, a waveform processing circuit for processing a signal from said ultrasonic transmission/reception circuit, and a control section for controlling operation of said ultrasonic transmission/reception circuit and said waveform processing circuit, a ultrasonic inspection system diagnosis method comprising the steps of connecting said probe to said ultrasonic transmission/reception circuit, making said probe opposed to a test object, exciting said probe for outputting ultrasonics, collecting at least either of data output from said ultrasonic transmission/reception circuit and data output from said waveform processing circuit based on a reflected wave signal of the ultrasonics, disconnecting said probe from said ultrasonic transmission/reception circuit, collecting at least either of data output from said ultrasonic transmission/reception circuit and data output from said waveform processing circuit when a test signal is fed into said ultrasonic transmission/reception circuit, and diagnosing said ultrasonic inspection system based on the collected data.

17. In a ultrasonic inspection system comprising a probe and a system main body comprising a ultrasonic transmission/reception circuit for exciting said probe and receiving a signal therefrom, a waveform processing circuit for processing a signal from said ultrasonic transmission/reception circuit, and a control section for controlling operation of said ultrasonic transmission/reception circuit and said

09214855 011499
Conclud
A14

waveform processing circuit, a ultrasonic inspection system diagnosis system comprising positioning means for making said probe opposed to a test object with said probe connected to said ultrasonic transmission/reception circuit, probe excitation means for exciting said probe with said probe opposed to the test object, first data collection means for collecting at least either of data output from said ultrasonic transmission/reception circuit and data output from said waveform processing circuit when said probe is excited by said probe excitation means, test signal output means for feeding a test signal into said ultrasonic transmission/reception circuit with said probe disconnected from said ultrasonic transmission/reception circuit, second data collection means for collecting at least either of data output from said ultrasonic transmission/reception circuit and data output from said waveform processing circuit when a test signal is output by said test signal output means, and determination means for determining whether or not an abnormality is contained in said ultrasonic inspection system based on the output data collected by said first data collection means and said second data collection means.

18. The ultrasonic inspection system diagnosis system as claimed in claim 17 wherein said probe is connected to and disconnected from said system main body by a switch device.

19. The ultrasonic inspection system diagnosis

system as claimed in claim 17 or 18 wherein the test object is a bottom of a water tank where a specimen of said ultrasonic inspection system is placed and wherein said positioning means is means for moving said probe to a predetermined position on the bottom of the water tank.

20. The ultrasonic inspection system diagnosis system as claimed in claim 17, 18, or 19 further including a display section for displaying a determination result of said determination means.

21. A ultrasonic inspection system having a ultrasonic probe data management function for transmitting and receiving ultrasonics with one selected from ultrasonic probes and inspecting a specimen based on a received ultrasonic signal, characterized by an external storage medium for storing general characteristic data of each of the ultrasonic probes.

22. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 21 wherein the general characteristic data of each ultrasonic probe stored on said external storage medium is data at manufacturing time of the ultrasonic probe and data added to the data or updated data each time the ultrasonic probe is inspected.

23. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 21 or 22 comprising ultrasonic probe inspection means for executing inspection for getting predetermined characteristic

data of the ultrasonic probe and characteristic data storage means for storing the characteristic data provided by said ultrasonic probe inspection means on said external storage medium.

24. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 21 or 23 comprising a storage section for storing data stored on said external storage medium.

25. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in any of claims 21 to 24 comprising a display section for displaying the data stored on said external storage medium or said storage section.

26. A ultrasonic inspection system having a ultrasonic probe data management function for transmitting and receiving ultrasonics with one selected from ultrasonic probes and inspecting a specimen based on a received ultrasonic signal, characterized in that each of said ultrasonic probes is provided with a storage device for storing general characteristic data of said ultrasonic probe.

27. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 26 wherein the general characteristic data of said ultrasonic probe stored in said storage device is data at manufacturing time of said ultrasonic probe and data added to the data or updated data each time said ultrasonic probe is inspected.

28. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 26 or 27 comprising ultrasonic probe inspection means for executing inspection for getting predetermined characteristic data of said ultrasonic probe and characteristic data read means for storing the characteristic data provided by said ultrasonic probe inspection means in said storage device.

29. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in any of claims 26 to 28 comprising a storage section for storing the data stored in said storage device.

30. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in any of claims 26 to 29 comprising a display section for displaying the data stored in said storage device.

31. A ultrasonic inspection system having a ultrasonic probe data management function for transmitting and receiving ultrasonics with one selected from ultrasonic probes and inspecting a specimen based on a received ultrasonic signal, said system comprising a computer connected to one or more ultrasonic inspection systems by a transmission line, probe data collection means for collecting characteristic data of the ultrasonic probes contained in said computer, and a storage section for storing the characteristic data collected by said probe data collection means.

32. The ultrasonic inspection system having a

*Sub
B1
Conced*

ultrasonic probe data management function wherein said computer comprises ultrasonic probe inspection means for re-inspecting the ultrasonic probe connected by the transmission line and characteristic data read means for storing the characteristic data provided by said ultrasonic probe inspection means in said storage section via the transmission line.

33. The ultrasonic inspection system having a ultrasonic probe data management function as claimed in claim 31 or 32 further including a display section for displaying the data stored in said storage section.

*Add
A17*

add E,

0521485 01449
664FF0" 5987260